

ABSTRACT OF THE DISCLOSURE

A method and miniature analytical device with thermal regulation of reactants using a localized heat source capable of emitting electromagnetic radiation, such as light emitting diodes ("LED's) and vertical cavity surface emitting lasers ("VCSEL's), generating internal heat, such as resistive, inductive and Peltier heaters, or external heating. The miniature analytical device comprises of array of temperature-controlled zones to restrict the volume heated and localize the heating by having the localized heat source comprise an array of emitters or heaters.